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## PROBLEMS FOR SOLUTION.

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### ARITHMETIC.

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**116.** Proposed by J. O. MAHONEY, B. E., M. Sc., Professor of Mathematics and Science, Cooper Training School, Carthage, Tex.

Two candles are of the same length. The one is consumed uniformly in 4 hours, and the other in 5 hours. If the candles are lighted at the same time, when will one be three times as long as the other?

**117.** Proposed by MARCUS BAKER, U. S. Coast and Geodetic Survey, 1905 Sixteenth St., Washington, D. C.

A landed man two daughters had,  
And both were very fair;  
He gave to each a piece of land,  
One round the other square.  
  
At twenty shillings an acre, just,  
Each piece its value had;  
The shillings that did compass each,  
For it exactly paid.  
  
If 'cross a shilling be an inch,  
(As it is, very near),  
Which had the larger portion, she  
That had the round or square?

Also, how many acres did each receive?

[Does any one know the history of this problem?]

\* \* \* Solutions of these problems should be sent to B. F. Finkel not later than Sept. 10.

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### ALGEBRA.

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**105.** Proposed by CHARLES E. MYERS, Canton, Ohio.

Solve for  $x$  the following :  $a \log(ax^2) = m \log(m)$ .

**106.** Proposed by ELMER SCHUYLER, High Bridge, N. J.

$$\frac{x^3 + x}{y^2 + y} = a; \quad \frac{x^2 + y}{y^2 + x} = b; \quad \text{find } x \text{ and } y.$$

\* \* \* Solutions of these problems should be sent to J. M. Colaw not later than Sept. 10.

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### GEOMETRY.

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**124.** Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics, Drury College, Springfield, Mo.

Every conic that passes through all the foci of a conic is a rectangular hyperbola.  
[From Charlotte A Scott's *Modern Analytical Geometry*.]

**125.** Proposed by J. SHEFFER, A. M., Hagerstown, Md.

To find the locus of a point on the surface of an ellipsoid which has the property that the tangent plane at that point is at the given distance,  $f$ , from the center of the ellipsoid.

\* \* \* Solutions of these problems should be sent to B. F. Finkel not later than Sept. 10.